

4. Ladder Logic

4.1. Definition

Ladder logic is one form of drawing electrical logic schematics, and is a graphical language very popular for programming Programmable Logic Controllers. Ladder logic was originally invented to describe logic made from relays. The name is based on the observation that programs in this language resemble ladders, with two vertical "rails" and a series of horizontal "rungs" between them. Figure 5 below is a very basic example ladder logic used in a programmable logic controls program.

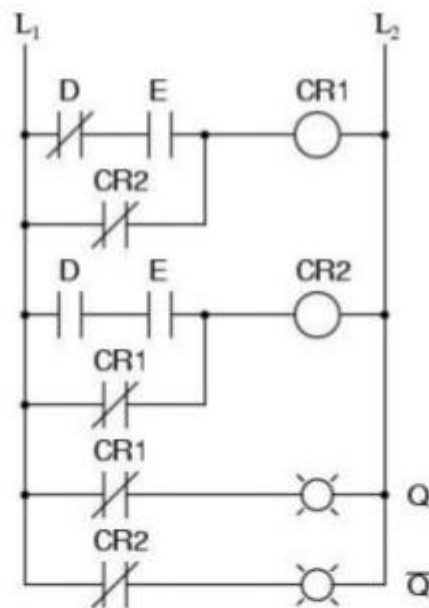
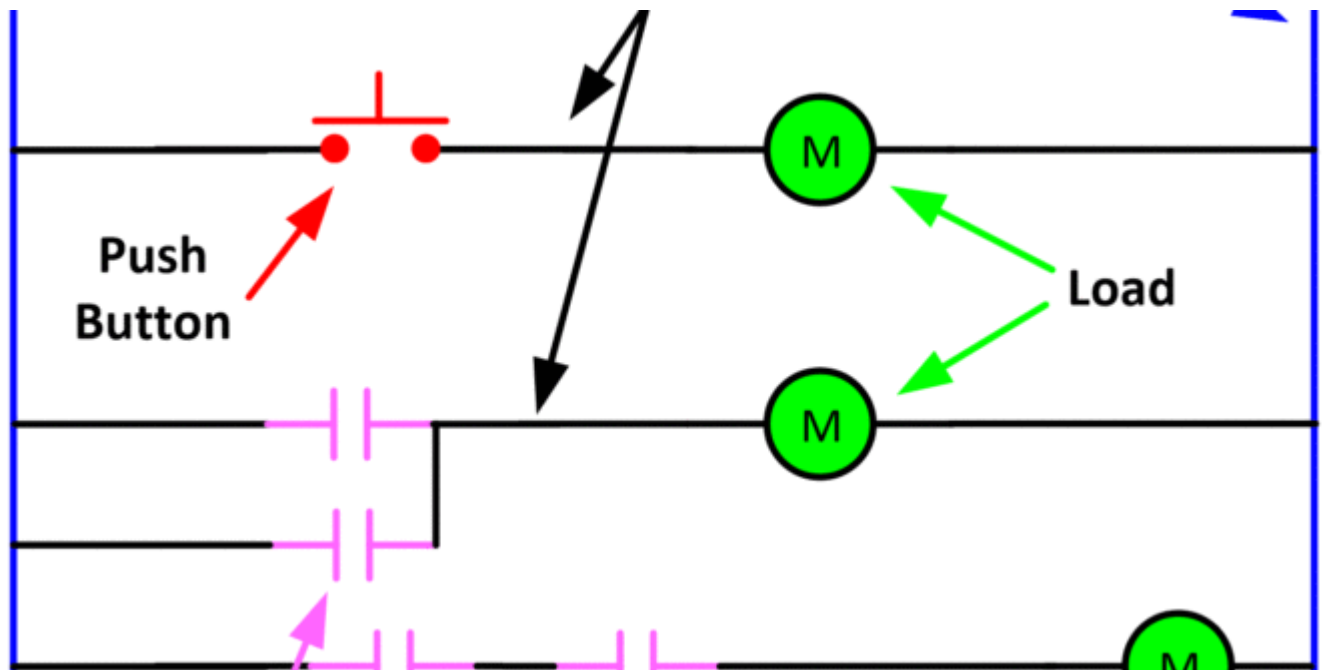
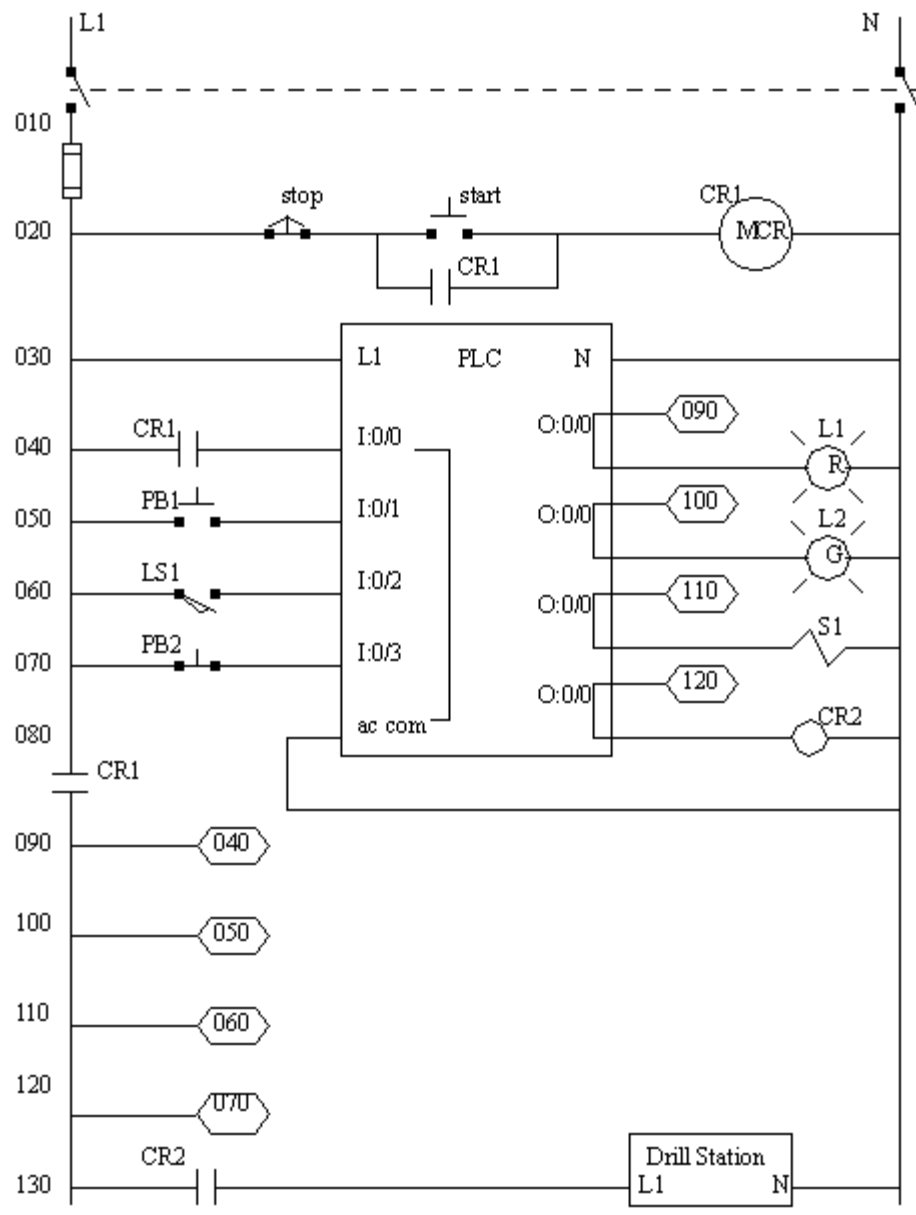


Figure 5: Basic Ladder Logic Program

4.2. Comparison to Relay Logic

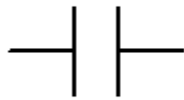
The program used in a controls schematic, called a ladder diagram, is similar to a schematic for a set of relay circuits. An argument that aided the initial adoption of ladder logic was that a wide variety of engineers and technicians would be able to understand





Ladder diagram symbols

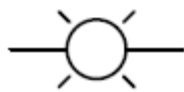
NO relay contact



NC relay contact



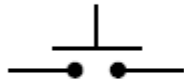
Indicator lamp



Heating element



NO pushbutton switch



NC pushbutton switch



Overload heater



Fuse

